

ABSTRACT OF THE DISCLOSURE

An optical disk based gas-sensing and storage system for sensing toxic gas species or environmental contaminants and recording such events on an optical data storage disk. The system includes a gas-retaining unit having an internal cavity for retaining a gaseous sample potentially comprising a gas species of interest, an optical storage disk arranged for contact with the gaseous sample in the gas-retaining unit, wherein the optical data storage disk includes a gas-sensing medium that exhibits a physical and/or chemical property change when exposed to the gas species of interest thereby generating optically readable signals, and a laser energy source positioned to irradiate the optical data storage disk to detect and/or enhance changes in chemical and/or physical properties of the gas-sensing medium and record optically readable signals.